



WHAT IS CLAIMED IS:

1. An electronic device, comprising:
 - an active region located over a substrate;
 - an undoped layer located over the active region, the undoped layer having a barrier region including aluminum located thereover;
 - and
 - a doped upper cladding layer located over the barrier region.
2. The electronic device as recited in Claim 1 wherein the barrier region is a barrier layer or a number of barrier layers located between a plurality of the undoped layers.
3. The electronic device as recited in Claim 2 wherein the number of barrier layers ranges from about 1 to about 8 layers and each of the number of barrier layers has a thickness of about 1 nm.
4. The electronic device as recited in Claim 1 wherein the barrier region includes an barrier layer consisting of aluminum arsenide, aluminum phosphide, indium aluminum arsenide, indium aluminum arsenide phosphide, or indium aluminum gallium arsenide.
5. The electronic device as recited in Claim 4 wherein the